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TRAVELS IN SWEDEN, NORWAY, LAPLAND AND NORTHERN FINLAND.

BY

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The peninsula of Scandinavia embraces nearly sixteen degrees in latitude, 55° 20′ to 71° 10′, an extent as great as that from the most northern part of the State of Maine to Florida. The boundaries of Sweden and Norway include more territory than those of any other country in Europe except Russia, its total area amounting to 294,000 English square miles. An oblique line from Northern Germany through France and Spain would equal the length of the Scandinavian Peninsula, but its greatest width is not more than seven hundred miles.

It is a glorious land, with superb mountains, deep valleys, bleak plateaux, wild ravines, numberless picturesque and clear lakes; immense forests of fir, pine and birch trees; large and superb glaciers, majestic fjords reaching far inland in the midst of grand scenery, rivulets of clear water, rivers and streams which, in their hurried course from the heights above to the chasms below, plunge in grand waterfalls. Contrasted with these are immense areas of desolate and barren land and rocks, of swamps and moorlands. There are also many exquisite sylvan landscapes by the sea and the lakes. In the north of this land the sun shines day and night.

The country, though so far north, enjoys, comparatively speaking, a mild climate, owing to the Gulf stream, whose water sweeps along the western shore of the peninsula; consequently, even very far north the vegetation is remarkable.

The countries in America and Asia have a very cold and barren aspect compared with Scandinavia. The climate on the east side of the peninsula is colder and dryer, and the winters are also longer.

Rye, which beyond the Arctic circle is planted in the beginning or middle of June, attains a height of seven or eight feet early in August, and when first planted grows sometimes at the rate of three inches a day. Barley in some places is ready to be gathered in the middle of August, six or seven weeks after being sown. This is due, no doubt, to the days of long sunshine.

Wheat does not thrive beyond the Arctic circle in Sweden, but grows luxuriantly in the southern part of that country, especially in the province called Scania; there it takes from 110 to 120 days from sowing to harvesting. In Norway, on the coast, wheat grows as far as 69° 28′ north, and there all kinds of vegetation mature very rapidly. Rye, both winter and summer varieties, thrives as far north as Alten fjord. Barley and oats grow further north than any other grain, and on the Norwegian coast even further than 70° north.

Potatoes yield well in Sweden, even further than the Arctic circle; in Norway as far as the Alten fjord, and in warm summers as far as 71° 4′; but east of North cape the climate becomes colder. At Vadsö, 70° 40′, they cannot begin gardening before the middle of June, sometimes even later.

The Trees. The larch extends in Sweden a little above the Arctic circle; in Norway it grows further north. The bird-cherry tree (*Prunus padus*) grows in Sweden beyond the Arctic circle; in Norway, as far as 70° 20′. The mountain ash bears fruit in Norway as far as the Alten fjord, in

70°, and the maple (*Acer Platanoides*), the horsechestnut and the elm grow in that country as far as the Arctic circle.

In Norway the fir and spruce region (regio sylvatica) extends from the coast up to about 3,200 feet below the snow line, and forests of fine grown trees are seen as far as latitude 70° by the Tana and Karasjok rivers.

The birch grows to a higher elevation than any other tree. The variety *Betula alba glutinosa* grows almost as far as North cape, and in the southern part of the peninsula it grows as high as 3,500 to 3,600 feet above the level of the sea. In the higher regions the birch disappears ; the dwarf willow(*Salix glauca*), the dwarf birch (*Betula nana*), and the juniper (*Juniperus communis*) grow about 1,400 feet below the snow line, and these are seen as far as the North cape.

A little further north than the town of Haparanda, situated near the mouth of the Torneo river, one crosses the Arctic circle, 66° 32′ north latitude, and the midnight sun from the 22nd of June can be seen casting its radiance over most lovely landscapes, while further west it shines over the weird Norwegian coast and mountains.

At the North cape it is seen for the first time on the 13th of May, and remains above the horizon until the 30th of July. It disappears from November 14th until January 24th. The days lengthen so rapidly that I could read on a clear day, a book at midnight, on the 25th of April, at Vadso, a town situated a little south of North cape.

The peninsula of Scandinavia stands unrivalled in Europe for the size and number of its glaciers, and the immense fields of perpetual snow which are the fountain heads, the reservoirs, the sources of these glaciers.

The most northern one is the Jedki, on the island of Seiland, latitude 70° 71′. The Jokel, on the Kvænanger fjord, has glaciers running into the sea. The Jostedal snow-field is the largest in Scandinavia, and is situated between the Nord and Sogne fjords, and covers a space of eighty-two English square miles, and is the source of many superb glaciers. There are many others besides these.

The Snow. The limit of perpetual snow varies. On the island of Seiland, latitude 70° 30′, it is 2,880 feet above the level of the sea. In Julster, latitude 61° 32′, it is as low as in Seiland, though much more south. In Bojumdalen Fjærland, latitude 61° 30′, it is found at 2,470 feet lower than on the most northern part of Scandinavia; while on the Dover mountains, in Lodalen, on the Jostedal, and in many others, it varies from 4,000 to 5,200 feet. The most southern glacier is found in latitude 61° 20′. The climate of Norway and the configuration of the mountains are particularly adapted for the formation of perpetual snow-fields and of glaciers.

The Fjords. All along the penninsula of Scandinavia, the traveller sees everywhere deep narrow arms of the sea winding their way often a hundred miles amidst the masses of rocks belonging to the oldest formations—these arms of the sea are called by the people fjords. Those of Norway are far larger and more majestic than those of Sweden, and partake of the grandeur of the scenery characteristic of the country.

As you gaze with admiration, almost with awe, at their walls, towering thousands of feet above the sea, the question naturally arises, what are the causes which have formed these wonderful channels? As the sea has no sweep adequate to produce them, the second thought might be that some great convulsions of nature have led to their formation; but neither the sea nor geological catastrophes have been active agents in the case. Invariably at their end there is a valley, with a stream collecting the water from the mountain side. These valleys in all respects are a continuation of the fjord, only one is land the other water, and both are cut out of the solid rock; the same is true of the branch or transverse fjords or dales.

Everywhere you see the grooving, striation, and polishing due to the action of the ice; numerous moraines, so extensive that they are often covered with farms, fields and hamlets; everything shows that the fjords, like the valleys, have been scooped out of the solid rock by the action of the glaciers. Looking at the immense height of these walls, and adding the great depth, which is often equal to the height of the mountains, we cannot comprehend the vast periods of time that must have been required by the glaciers to do this work on their slow but irresistible march to the sea; and we get an idea, which nothing else can give us, of the tremendous power of water, in the form of ice, in modifying the surface characters of the globe. To this day there are in Norway glaciers at the upper end of the fjords coming down to the sea, silent but unimpeachable witnesses of the work they have accomplished, and are still continuing. As they retire, month after month, they leave on the rocks precisely the same marks which they did ages ago. Time, frost and atmospheric agencies have obliterated in many places these ice-marks, and often the dirt and debris of centuries hide them from the common eye, while preserving them for the geologist.

Sailing along the fjords, the openings of the valleys, or the sheltered bays of the Norwegian coast, the attention of the traveller cannot fail to be attracted by the terraces, or sea-beaches, rising one over the other in amphitheatre form, looking like broad, gigantic steps. They suggest at once successive risings of the land, and different, more or less permanent, levels of the sea into which the rivers and streams have carried down stone, gravel, sand and clay, and spread them beneath the surface. In many of the fjords are short, steep valleys, whose entrance is barred by a terrace or two, surmounted by the blocks, stones, and sand of a moraine left by the preceding Glacial period. There are many lakes thus produced, following the course of the valley. The highest terrace, distinguishable from the moraine by its stratification, marks the oldest sea level. Their height depends on the width of the valley, the amount of material deposited, and the duration of the subsidence ; the oldest strata reach a height of 600 to 620 feet, and contain marine arctic fossils. Marine shells and shellbanks of two distinct faunæ are also found in the clay. In the hard clay marls have been discovered skeletons of seals and fishes, and large peat-beds occur in the plains. The lower and more recent terraces, from 50 to 150 feet high, contain fossils belonging to the present faunæ of regions below the polar circle on the coast of Norway. Immense banks of marine shells run parallel with the coast, and over them is a dark mould, as at Podö. Other great beds also occur below these later terraces.

Shore-lines, composed of cobblestones, are met in different parts of the country. I have seen them on the northern shores of the Baltic, in the midst of coniferous forests, three in number, one above the other ; also on the coast of Finmarken, back of Vardö. Seamarks are seen on several points of the coast or Norway. I have particularly noticed them near the city of Trondhjem, where they are found at a height of 462 to 516 feet; near Stensö, on the Stavanger fjord; in Oxen fjord, 138 feet above the level of the sea, and also in Alten fjord. These marks do not correspond exactly with the height of the surrounding terraces, and must have been produced by the action of the waves, and would be much more common had not time and frost obliterated them in many places. The terraces, the shore-lines, and the sea-marks point to the great rising of the land during the so-called "Terrace epoch," and to long periods of repose. But if the above-mentioned facts indicate the upheaval of the land just before the present era, there is also proof that there has been in some districts a subsequent local sinking. There are several distinct submerged steep beaches on the island of Gotland, at a distance from the present cliffs, which, owing to the clearness of the water, can be distinctly seen from the shores.

The peninsula of Scandinavia presents very interesting geological and physical features. A great part of the country was uplifted above the ocean at a very remote period, and there is no other region which exhibits at the surface, comparatively, more extensive areas of the primary rocks constituting a large portion of the oldest crust of the globe.

A gulf formerly passed from the Arctic ocean, at Archangel, across Finland, which was then at the bottom of the sea, down to Gotland, or even farther. This is determined from the presence of fossil shells (such as Yoldia pygmæa), in the boulder clay of the coast of the Baltic and central parts of Sweden, now found only in the latitude of Spitzbergen.

The fundamental rocks are gneiss, mica-schist, hornblende, chloritic slates, and quartz; gneiss is the most prevalent, occurring as gray or red gneiss, hornblende gneiss, etc. Among the eruptives granite is the most common in Sweden, occurring with syenite everywhere. Pegmatite, or graphite granite, generally occurs in veins. Mica-slate and clay-slate occupy much less extent than the granite and gneiss. In some districts of Norway, between the coast and the mountains, the azoic mica-schists include veins of eruptive masses, especially granite and serpentine, and sometimes green stone; even the more recent rocks are thus penetrated; occasionally the old granite mountains are diversified by slates.

The Kiölen range comprises a chain following the boundary line from the Skjæker mountains in the north to the Faxefjeld in the south; in the north its rocks are imperfectly known, but the central part has sparamite in the middle, Trondhjem slates on both sides, and granite and gabbro masses both in the central axis and in side lines.

In the extreme northern part of Norway the primary rocks are less prevalent, being mostly covered with more recent rocks, consisting of slates, sand and limestones of different kinds. In Finmarken, of eruptives are found gabbro, greenstone and granite, though not so extensively as in other parts of Norway. Central Norway is chiefly of sparamite formation, with overlying clay, slates and quartz in broad belts.

In Norway there is much hornblende and quartz slate, gray gneiss and green slate, either one forming the principal rock, or the gneiss overlaid by the slates. In many of the great granite ranges are rich quarries of felspar.

All the ores of Sweden occur in the oldest azoic formations—copper, nickel, iron, silver, cobalt, phosphate of lime, and gold in small quantities; in some districts the iron is titaniferous, and occasionally entirely above the surface.

The Silurian strata are most developed in central Sweden, while in Norway they occur principally in the Christiania valley. The Devonian formations are found only on three islands in Lake Mälar, as shown from the characteristic fossils. The carboniferous formations are entirely wanting. The geological formations between the carboniferous and the post-tertiary are not found in Norway and Sweden, with the exception of the lias and chalk formations, which are found in Scania and Blekinge, and a few mesozoic strata in Finmarken. The post-tertiary rests directly upon the paleozoic. The post-tertiary formations of Sweden and Norway show that, notwithstanding the great changes of surface experienced by the more southern portion of the European continent, the Scandinavian peninsula, up to comparatively recent times, has preserved nearly its ancient relative level above the sea, with the exception of the lias and the chalk in its southern part.

There is a group of islands not far from the Norwegian coast, beyond the Arctic circle, between lat. 67° and 69°, called the Lofoden. They are unsurpassed in their wild beauty; a tempestuous sea beats almost all the year against their rocky walls; the warm Gulf stream laves their shores. As one sails among them their fantastic forms are ever changing in appearance, some of their peaks appearing like needles against the blue sky. Their outlines stand out clear and sharp, and their purple color grows dimmer and dimmer as they fade away from sight, like a vision of the sea. No wonder that in ancient times the mariner regarded them almost with reverence, and believed that a malström should guard their approach from the south, so beautiful are they.

In consequence of the great masses of water which the tides force through the narrow sounds between the islands of Lofoden, the current becomes exceedingly strong and forms the so-called *malström*, which is the strongest between Lofoden cape and Mosken; this, while being without the significance ascribed to it, can in winter, during westerly gales, run in strong whirls, and with a speed of twenty-six miles an hour, according to official statistics. Looking from them towards the mainland, a hundred peaks can be seen on the mountains clad with snow and glaciers, and from the bare brow of the coast the Lofoden appears like a gigantic uneven wall rising from the sea.

The Lofoden are famed for their cod fisheries, which begin in the latter part of January and last until the beginning of April. At that time the rocky and deserted islands become full of life; thousands of fishing-craft come, and hundreds of vessels are seen nestled safely among the islands. The codfish in untold numbers make their appearance, whence no one knows, to spawn. They begin to arrive in January, and leave at the end of March or at the beginning of April, migrating towards the North cape and along the Finmarken coast; they then disappear for the year.

The fishing station of Henningsvær is formed by the island of that name and Hellandsö, making a natural canal between the two islands. In the fishing season an unexpected sight bursts upon the traveller: a fleet hitherto unseen is at anchor. At one time I saw there seventy-five sail; these were composed of sloops, schooners and cutters, with crews aggregating 328 men. Most of these vessels bought their fish directly from the fishermen; several had stores, and sold sugar, coffee, ship-bread, tobacco and many other things. There were 688 fishing-boats; 351 had come to fish with nets, the remainder with hook and line; the crews of all numbered 3,337 men. Craft laden with fish, some almost to the water's edge, were going to and fro, stopping alongside a vessel to make a bargain, putting their loads on board or making for the land. Immense quantities of cod were piled one upon another on the shore, men were busy opening and cleaning them, and tens of thousands of the fish were hanging upon poles to dry. Numerous log-houses were surrounded by barrels filled with cod-livers, and every rock covered with their heads. Hundreds of boats lined the shores, crowding the narrow channel. Great numbers of eider-ducks, as tame as those on the farms, were swimming to and fro, seeming to know that no one would harm them.

The Norwegian Government exercises a paternal care over the men who form such an important part of its population, and who contribute so much to the wealth and prosperity of the country. If it were not for the fisheries many districts of that rocky coast would be uninhabitable. Small hospitals are built on several islands; during the fishing season doctors sent by the State attend to the sick, giving their advice free; medicines only are paid for, and at a rate that merely covers their cost. A very small duty is paid on the fish sold, and the revenue from this source is applied to defray the expense of medical attendance. There was a project for building a large hospital on Henningsvær. The sale of spirituous liquors and of intoxicating drinks is wisely entirely forbidden, and during my two weeks' stay I saw but a single intoxicated man; he had brought his liquor from some point outside the fishing jurisdiction. This abstention from intoxicating drinks recalls to mind the warning given in the old laws of the Vikings (*Vikingabalk*):

> Wine is Valfader's (Odin's) drink, and
> An inebriation (*rus*) is welcome to thee
> If thou canst sensibly bear it.
> The one who is reeling ashore can brace up;
> But to Ran (daughter of Aegir, God of the Sea) reelest thou here
> (on the sea).

The fishing season, as has been said, commences at the end of January. From the 24th of January to the 8th of February, the fishermen can not put out from shore before seven o'clock; afterwards to a date fixed, they cannot go out before six o'clock; from the 22d of March to the 14th of April, five o'clock. The cod fisheries are virtually closed after the 14th of April.

Two kinds of boats are used; one is open, from thirty to thirty-five feet long, and six to six and a half feet beam; the Finmarken boats are longer—they have a house on the poop—being from thirty-five to forty feet and more in length, and from seven to seven and a half feet beam; a pole several feet long is attached to the rudder, and held by the last rower, who steers as well as pulls, thus saving the labor of one man. Their cabins are about eight or nine feet long, affording protection at sea and sleeping accommodations, as the men do not return to land every day. There are also little craft, used for transporting the fish from the shore to the vessels; these are not more than nine feet long by four feet wide.

Winter. How great is the contrast between summer and winter on the peninsula of Scandinavia ! In the far north a sombre sky hangs over the country ; but even at the end of December, which is the darkest period, when the weather is clear one can read from eleven o'clock A. M. to one P. M. without artificial light. All nature seems to be in deep repose ; the gurgling brook is silent, the turbulent streams are frozen, the waves of the lakes upon which the rays of the summer sun played strike no more on the pebbled shores. The land is clad in a mantle of snow. Day after day the atmosphere is so still that not a breath of wind seems to pass over the hills ; but suddenly the periods of repose are succeeded by dark and threatening skies and violent tempests. Under the fierce winds the pines bend their heads, and the mountain snow is swept away to immense heights, hiding everything from sight.

The great belt of snow seems to be between 62° to 65°. The severest snow storm that took place during my sojourn in Scandinavia was in the month of January, and lasted seven days—from one Sunday to another—without interruption.

It is necessary to know how to walk with snow-shoes, and, if travelling in the far north, to know how to drive with reindeer, in order to enjoy the pleasures of winter.

The climate from the Arctic circle northward is steady in regard to cold weather, the thermometer ascending rarely as high as the freezing point, and ranging from that degree to 40° to 48° below zero, the period of intense cold rarely extending more than three or four days at a time.

The *aurora borealis* sends its flashes and streamers of light high up towards the zenith, and there are days when the electric storm culminates in a corona of gorgeous color, presenting a spectacle never to be forgotten.

In the far north the winter is the travelling season, as then the rivers, lakes and marshes are frozen, and one can roam over the roadless land with rapidity by reindeer, or may go eastward to the White sea and the land of the Samoïdes—to Siberia, if he chooses; westward and northward over the mountains to the Norwegian coast. In Sweden and Norway there are post-stations, where reindeer may be procured. Houses of refuge, built by the Swedish and Norwegian Governments to shelter travellers, are found in the districts where there is no population. No one should ever travel in these bleak regions in winter without knowing where these are situated, for otherwise he is sure to meet his death by storm.

The snow-shoes used in Scandinavia are very unlike those of the Indians in North America, and are far superior for speed and comfort, requiring no spreading of the limbs. At the first glance one may think them clumsy, on account of their great length. Those used in a mountainous or wooded country are the shortest, and generally six or seven feet long; those used in Jemtland and in some other parts of the country measure sometimes fourteen to sixteen feet. They are made of fir wood, about one-third of an inch thick at the centre, which is the thickest part, and four or five inches wide. There is a piece of birch at the centre, and over this is a loop through which the instep of the foot is passed; the part near the foot is convex, so that the weight of the body cannot bend the shoe downward. The under part is very smooth, with a narrow furrow. Both ends are pointed. In the north the boots or shoes are specially adapted to snow-shoes, they being pointed, without heels, and so large that the foot can be surrounded by a so-called lapp grass (*carex vesicaria*). With two pairs of home-made woollen stockings one can defy the cold, no matter how low the temperature may be, but the foot must be perfectly free.

Snow-shoes must not be raised, but slid one after the other, unless when going down hill; then the feet are kept side by side if possible. For a beginner the great difficulty is to keep the two shoes exactly parallel, and prevent them from becoming entangled with each other. It is very difficult to walk on the crusted snow. The ascent of the hills is made in zigzag, and is hard work for those not accustomed to it. But the most difficult of all is to descend the steep hills, as the momentum and speed are very great; it is even quite dangerous in mountainous regions and where boulders are uncovered; it is safe only for those who have practised from childhood, for the speed is as great as in coasting. In descending, the two shoes must be parallel and close together—a very difficult task. One must have a long stout staff for a rudder and guide, to be used on the right or left as occasion requires, and the body must be bent forward. I have never been able to descend in this manner. In going down hill, he who cannot imitate a Scandinavian or Lapp, must ride a staff, resting upon it as heavily as he can, taking care also to keep the shoes even. The staff acts as a drag, and prevents him from going too fast. The natives can go easily ten or fifteen miles an hour when the snow is firm and in good condition, and travel one hundred to one hundred and fifty miles a day.

TRAVELLING WITH REINDEER.

The conveyances used in Lapland are peculiar. The *kerres* used either to carry people or merchandise is very much the shape of an open boat, and is made of narrow fir planks, very strongly ribbed inside, about seven feet long, two and a half at the broadest part, varying but little in width. The keel is very strong, about four inches wide, but varies much in thickness, as they wear out in time by constant rubbing. The higher they are the quicker one can travel; as in case the snow is well packed or crusted the sides hardly touch it, and the keel then acts like a runner under a skate. *Pulkas*, built for fast travelling, have keels about two and a half inches thick. The higher they are the more difficult it is to learn how to balance one's self, and consequently not to upset. Each conveyance is drawn by a reindeer, and carries a single person. All have on the forward part a strong leather ring, to which the trace is fastened. The harness is very simple, the common one consisting of a collar round the neck, at the lower part of which a single twisted or leather trace is fastened, to which the conveyance is attached. No bit is used, and the rein is made of strong plaited leather straps, and fastened to the base of the horns. The rider seats himself, holding the rein twisted round the right hand. The line must not be held tightly, and the middle part should not quite touch the snow, for it is dangerous should the rein get under the sleigh; in this case the driver's arms may become entangled, and he be dragged some distance before he can loosen the cord round his hands. A novice, therefore, must be constantly on the watch. If you want the reindeer to stop the rein is thrown to the left; if you wish to go fast, then to the right.

The most difficult and dangerous time in driving is in descending steep hills, as the speed of the sleigh is greater than that of the reindeer. The Lapps sit astride, with their knees bent, using their feet as rudder and drag. To a novice the practice is very dangerous, and might lead to his breaking his legs. They never would allow me to come down in this manner. In going down I used a short stick, the point of which I would force into the snow with all my might, this acting as a drag. But sometimes the hills and mountains are too steep even for the Lapps. In that case a reindeer is tied behind the conveyance; they cannot bear to be pulled by the horns, and consequently they make strong efforts to free themselves, and in so doing greatly lessen the speed. It is also very difficult to learn how to balance one's self, so as to keep the equilibrium of the pulka and prevent upsetting; the greater the speed the more difficult is the task. For example, when a deer after swiftly going down a hill, turns suddenly a sharp curve, the rider must bend to the other side, or he will be overturned.

The reindeer are not housed like horses or cattle, and they are left to roam, in the forest, the people going after them when they are needed—they have to find their own food. In winter, under the thick cover of the snow is buried the rich moss of which the animal is so fond—so you see often all the reindeer of a herd busy digging, first with one forefoot then with the other; the holes gradually become larger and larger, and the bodies of the animals become more and more hidden. At last they reach the moss—then only their tails are seen above the snow. A strong reindeer can draw from 200 to 400 pounds, according to the country.

Every load in Swedish and Norwegian Lapland is drawn in the boat-like sleigh, and by one animal only. Amongst the Samoïdes several reindeer are harnessed together to one sleigh. If the country is mountainous, a spare reindeer is taken in the descent of very steep hills.

All over Swedish and Norwegian Lapland churches are scattered, so that the Laplander may easily attend a church, enjoy the privileges of religion, and partake of the Lord's Supper ; and, when his days are ended, his body is carried thence to the graveyard. Near the church are schools, where the children are taught and the clergyman imparts the precepts of religion.

At the solitary farms and little hamlets of Lapland the sickly are left, and the kind care of the farmers is repaid, as I have said before, by presents from Lapps, and by taking care of their reindeer. In these hamlets, sometimes very far from home, the young people are confirmed, and finish their religious education. In the church they are baptized, and around it they are buried. The church to them is a sacred and beloved spot ; they repair to it with joyful hearts, and all those who can, at certain times of the year, make it a point to participate in its religious services. The Laplanders always come and partake of the Lord's Supper at Easter, before they go with their herds into the mountains for the summer, to be absent several months.

The Laplanders may be divided into the following classes, according to their habits and manner of life : (1) The Mountain or Nomad Lapps, who live upon the increase of their herds, and wander with them all the year around from pasture to pasture, living in tents—these possess by far the largest number of reindeer; (2) The Sea Lapps; (3) The Forest Lapps; (4) The River Lapps; (5) The Fisher Lapps. All are descended from the Mountain or Nomad Lapps.

Russian Lapland has an extent of about 13,000 square miles; Swedish, 10,500; Finnish, 6,000; Norwegian, 3,500; in all 33,000 square miles. Some parts of Russian Lapland are covered with large forests of coniferous trees; these occupy about 3,000,000 acres, while the hills and valleys towards the north are chiefly clad with dwarfed birch, but there are also extensive tracts of tundra, or treeless desert.

In Norway and Sweden the Lapps are found as far south as 62° in the provinces of Herjedalen and Jemtland, and in Hedemarken and Trondhjem; but very few inhabit these two large Norwegian provinces.

The mountain Lapp's time is engaged in attending to his herd, to which he and his family devote all their energies, for their welfare depends on the growth of the animals.

According to the late census there are in

Sweden (1870)	6,702	Lapps	with	220,800	reindeer
Norway (1865)	17,178	"	"	101,768	"
Finland (1865)	615	"	"	40,200	"
Russia (1859)	2,207	"	"	4,200	"

Norwegian Nordland includes that part of the country which extends from about latitude 65° to 70° on the coast, and comprises the old province known under the name of Halogaland, and which is now divided into Nordland and Tromsö provinces, while Finmarken is farther north. The scenery on the shores is the wildest on the coast of Norway, and culminates in its savage and weird grandeur between the cities of Bodö and Tromsö; there the loftiest mountains are found, the highest being between the Lyngen and Ulfs fjords, with an altitude of 6,500 feet, and present the characteristics of the Alps.

Fishing is the chief occupation of the inhabitants; many of the farms are owned by fishermen. Wherever there is a good harbor one is sure to see some houses, or a fishing village, consisting of several families, who have settled together.

Finmarken is the most northerly province of Norway; at its extremity is North cape in latitude 71° 10′, nine hundred and eighty feet above the sea level. This bold promontory is a huge mass of mica-schist, rising dark and majestically from the sea. From there as far as the eye could reach is the deep-blue Arctic sea, disappearing on the northern horizon. Far beyond is that unknown region guarded by a wall of ice, which bars all approach.

On Magerö, at the head of a small fjord, towards the end of July, I saw thick green gneiss, dotted with buttercups and dandelions, violets and forget-me-nots, with stems more than a foot long. The dwarf birch and willows were abundant. Springs and streams seemed to burst from the earth, and the rays of the sun poured warmly into the narrow dell, which is the greenest little spot to be found anywhere so far north.

The transition from winter into spring is wonderful. On the 10th of May I encountered a snowstorm about one degree north of the Arctic circle--the snow was deep, the Torne river was frozen; but as the sun was warm and the snow melted, the ice over the river was in some places unsafe. On the 17th of May there were still four feet of snow in the surrounding forests by Pajala, which is some twenty or thirty miles north of the Arctic circle. During the day the mercury reached 45°–48° in the shade, and 86°–88° in the sun; the nights were still cold, the thermometer marking 20° above zero. Every day the weather became milder. On the 22d of May it snowed, but the flakes were large and damp. On the 23d it rained—the first rain of the year—a thick mist falling all day, with the thermometer at 42°.

The spring was now coming on with rapid strides, although earlier than usual. On the 29th of May the highest temperature was 63° in the shade and 104° in the sun; on the 30th, 66° in the shade and 105° in the sun, with about the same temperature on the 31st; and the last three nights had been without white frost, which the people said was over. The grass in sheltered spots by the rocks was green; swallows made their appearance, and cuckoos were heard in the woods. These were the forerunners of summer, and the people hailed their appearance with joy. The birches were yet leafless, but the buds were ready to burst forth, and the pines and firs had already started with new life. People were busy everywhere ploughing and manuring the fields. At the farm of Vara Perrai, about nine miles south of Pajala, I saw on the 29th of May the men ploughing, and a mother, two daughters and myself sowed barley. The Vara Perrai farm was said to be more forward than those around Haparanda. The last week in May had been a hard one for the farmers. When Saturday came all were well-nigh exhausted, and the day of rest was waited for as the day of relief.

Vegetation seemed to grow visibly, the heavy mass of snow had disappeared on the protected fields, the buds of the birch trees had opened, the meadows were green almost all over, nature smiled everywhere, and one could hardly credit the sudden transformation.

On the 16th of June only a few more drifts, protected by the rocks, were to be seen. The birches, with their young leaves, presented a charming sight; on many of the fields the barley had now germinated. The season was a few days in advance of the one I had spent in 1871, when I was on my way north.